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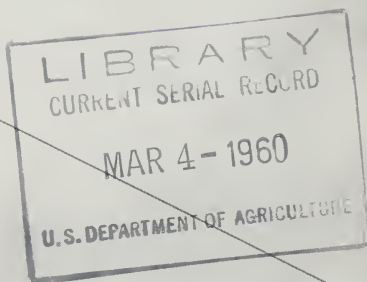
Rural Lines

RURAL ELECTRIFICATION ADMINISTRATION • U. S. DEPARTMENT OF AGRICULTURE

FEBRUARY

1960

6/9



WHAT ARE THEY TESTING? . . . (see p. 3)



A Message from the

ADMINISTRATOR

One of the things I enjoy about being REA Administrator is the harvest of comments, suggestions, and cooperation that comes to us. These come from individual directors and managers, from groups such as the Advisory Committees, borrowers' organizations, and industry associations, and from colleges and other Government agencies. This counsel and assistance is given to us routinely and without fanfare.

The Telephone Advisory Committee is an example. I met with the Committee recently. Its report did not receive much publicity, but the suggestions in it will help us keep on our toes and do better work. Of course, I am always pleased when the Committee gives REA a pat on the back, yet the real benefit to REA comes from the Committee's recommendations. These always get my careful attention.

From the most recent meeting came several proposals. These were concerned with short form applications to be used for supplementary loans, engineering procedures, measures to strengthen the safety program, insurance costs, continued availability of loan funds, and allocation of microwave frequencies.

I won't try to comment on each item in the Committee's report. What I want to do is acknowledge my appreciation of the contribution made by these busy men.

A strong point of the REA programs down through the years has been the genuine interest of so many people at all levels. Their willingness to devote time and talent guarantees that local people will continue to control their local electric and telephone service.

Rural Lines

Administrator.

Editor, John H. Howard; editor of this issue, Donald H. Cooper.

Cover picture: On a roof at the Bureau of Standards, in Washington, D. C., R. R. Bouche, research engineer at the Bureau, and C. R. Ballard, REA's outside telephone plant engineer, check a test for vibration in open wire telephone plant. Such tests promise economies and better efficiency in the rural telephone program.



Aerial view of National Bureau of Standards buildings. Laboratory facilities in large building at middle right test materials and design for rural telephone plant.

TESTING for better OPEN WIRE PLANT

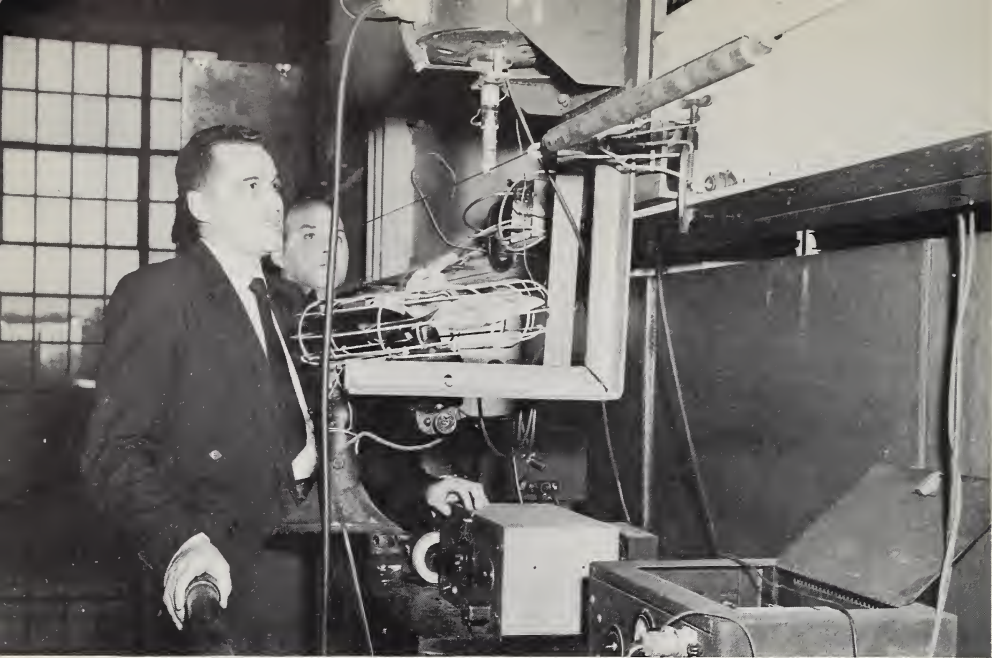
How useful are pre-tied ties and line dampers? REA and its telephone borrowers found that field trials supplied only part of the answer and took a long time. Telephone engineers saw that the solution lay in running tests which would compress the time in which the results become known.

The matter was taken to the National Bureau of Standards, U. S. Department of Commerce, in Washington, D. C. For several years now the Bureau has been running tests on wind-induced vibration of wire conductors, under REA sponsorship and financial support. This research is part of a continuing program of technical assistance to REA in which the

characteristics of materials and line construction are investigated.

A study of line vibration became necessary with the introduction of long span construction. In the early stages of the telephone program, it became evident that longer spans would have to be employed to help make service to subscribers in rural areas economically feasible. The high conductor tensions used in this method have resulted in serious problems in the "wind belt" area, from the Dakotas to Texas and New Mexico. A high rate of conductor failures occurred in some of the early open wire plant during the first winter of service, in the states of North Dakota, South Dakota, and Minnesota. Evidence indicated that these breaks were usually located at the tie points.

A new tie was obviously needed. As a first step, REA outlined some suggested design criteria for such a tie. The problem was discussed with several wire manufacturers. This led to the development of a new tie, featuring a splint which could be pre-



Dr. R. R. Bouche, Bureau of Standards research engineer in charge of telephone plant testing, points out vibration exciter with spring drive attached to telephone wire. Watching the test is REA's outside plant engineer, C. R. Ballard, who maintains REA liaison with the Bureau.

tied to the insulator, and which would eliminate all contact between the insulator tie wire and the line conductor. The new design gave every appearance of filling the bill. In order to check on this, rigid tests were conducted by the Bureau of Standards at REA's request.

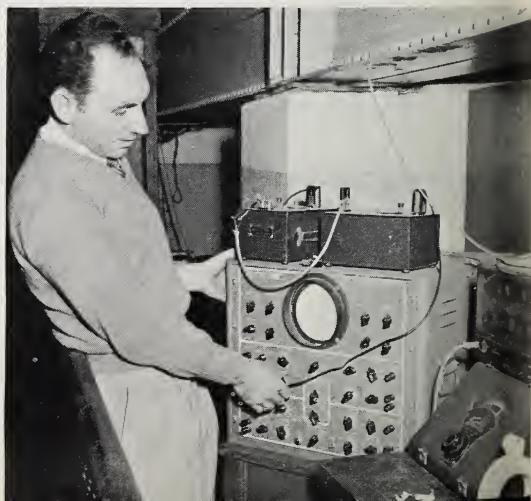
The line wires were vibrated under conditions representing the most severe of those occurring in service. Two types of ties were tied to insulators near each end of the line. This installation was subjected to natural frequencies for a period of 100 million cycles by an electro-dynamic exciter. The test results from the pretied tie were compared to those obtained from a commonly used tie. The tests showed that great care is needed to properly tie the commonly used ties if they are to perform satisfactorily. Even a preliminary design clearly illustrated the degree of excessive wear which will result from a

poor tie when it is subjected to intense and prolonged vibration. The tests confirmed the confidence in the pretied ties. No significant wear occurred in ties of the final design.

In another series of studies, the Bureau has performed wind tunnel tests at its engineering mechanics laboratories.

In these tests, measurements were made on conductors stretched across

Mechanically induced vibration is controlled and measured by equipment and instruments like these.



Mechanical engineers of the Bureau adjust oscillographic recorder for a wind tunnel test of wire vibration.



the test section of the wind tunnel. Necessary measuring and recording instruments were connected to the wire being tested, from which the frequency of vibration could be determined accurately.

A study of vibration caused by natural winds has been carried out on an outdoor test span located on top of one of the Bureau's buildings. Electrical connections were made between the conductor on the test span and measuring and recording instruments inside the building. An ingenious adjustment device to move the point of connection along the conductor near the pulley end could be controlled from inside. Microscopic measurements were taken of the amplitude of vibrations. The frequen-

cies of the vibrations were computed from the observed data.

The results of these tests on wire in a long span when compared to those of wind tunnel tests on wire in a shorter span indicate that wires vibrate in the same manner regardless of the span length. It was observed that wind velocity fluctuations make it difficult to determine vibration data in the field. Therefore those determined under steady conditions of the wind tunnel should be used in the field.

These tests also show the effectiveness of polyethylene sleeve dampers in eliminating wind-induced vibrations. This plastic sleeve has a spiral cut in it so that it can be easily slipped onto the line wire after the



This pre-tied tie was tested at the Bureau laboratories and is now used on rural telephone lines of REA borrowers.

tie has been made. The results of these preliminary tests revealed that the dampers significantly reduce wind-induced vibration. In fact, such vibrations are difficult to measure quantitatively.

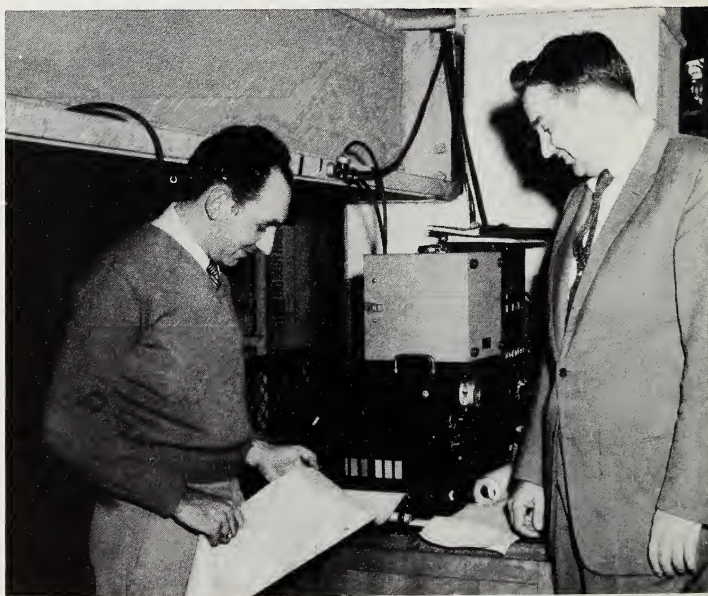
What has been gained by the various tests? First, the pre-tied tie was put in service during the spring of 1956 and now more than a million are on rural telephone lines. Sec-

ondly, the relationship between wind velocities and frequencies of the resulting vibrations has been definitely established. These findings are valuable for engineering reference data. Third, more than 2 million dampers have been installed to date on the telephone lines of REA borrowers in the Great Plains states.

The studies so far reveal the need for further tests. The problem of mid-span hits resulting from long span construction has not been completely solved. When two wires slap together in the wind, the hit causes central office equipment to activate, resulting in excessive wear and leading to numerous subscriber complaints about noisy lines. Efforts will continue with the aim of finding a satisfactory answer. By eliminating the effect of such hits, telephone service in rural areas will be improved.

Additional tests are needed to determine the optimum sizes of the polyethylene sleeves and economic feasibility of installing these dampers on power lines.

Bureau's Mechanical Engineer L. C. Ensor shows REA Engineer P. M. Emmons recorded data on natural wind-induced vibrations on outside span.



PROPOSED REVISION OF UNIFORM

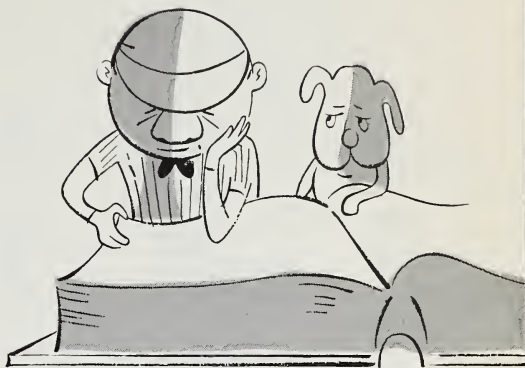
System of Accounts

System accountants of electric borrowers are going to have to learn some new account numbers.

The Federal Power Commission has announced a proposed revision of its Uniform System of Accounts prescribed for Public Utilities and Licensees subject to the provisions of the Federal Power Act. This proposed revision of the accounting system for Class A and Class B Public Utilities was announced in the Federal Register on May 14, 1959. FPC has proposed that the revised system shall become effective on January 1, 1961. This allows time to order new forms and prepare for the changes.

The Uniform System of Accounts prescribed by the Rural Electrification Administration for the use of its borrowers is based upon the FPC system prescribed for Class A and Class B Utilities. The REA system includes deviations only to the extent considered necessary to make it more suitable to the accounting responsibilities of the REA-financed electric utilities, but does not conflict with the basic principles of the FPC system of accounts.

Important developments in the electric power industry since the adoption in 1936 of the FPC System of Accounts, including the rapid expansion of the electric utility industry, the changing concepts of accounting theory and practice in recent years, and the development of atomic power as a source of energy for the generation of electricity, emphasize the need for the revisions.



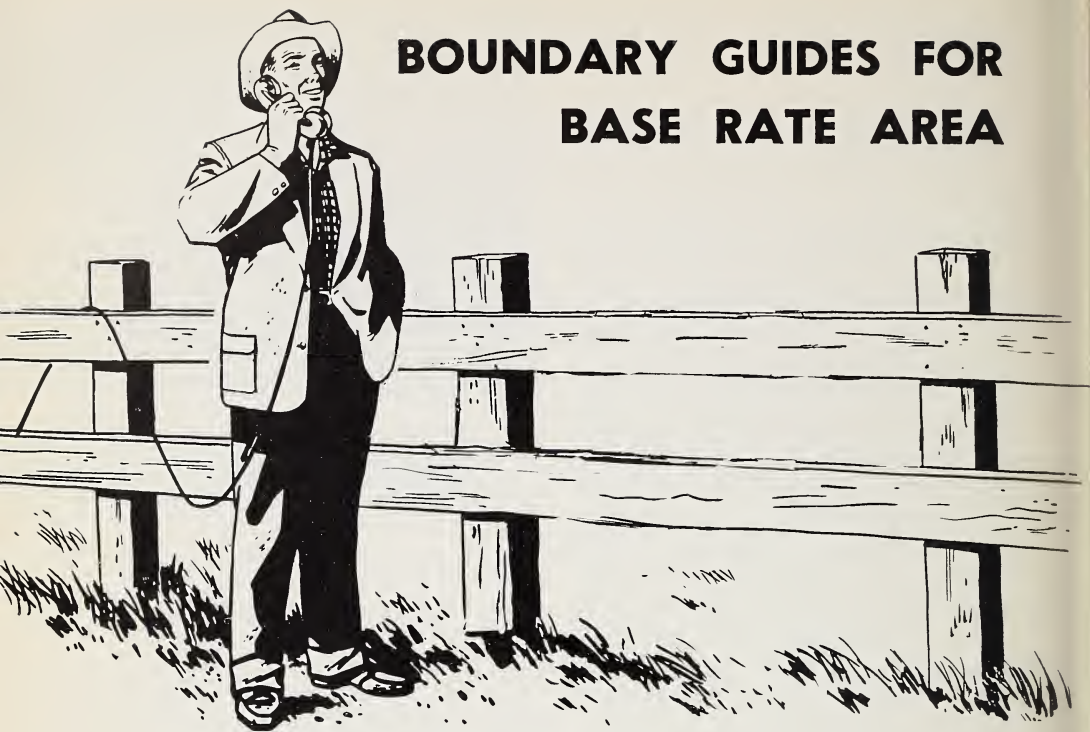
Because of the desirability for REA borrowers to adhere closely to the accounting principles established by FPC, it is considered imperative that REA revise its system of accounts in line with the proposals of FPC.

The revisions are to incorporate additions, deletions, condensations, editorial clarifications, and general improvements in instructions and account arrangements. There will be no changes in the basic accounting principles now in effect.

The revised REA System of Accounts will become effective January 1, 1961, after the revisions have been sent to borrowers. The revised system proposes changes in practically all of the account numbers and several account titles. Balance sheet accounts and revenue and expense accounts are to be rearranged in various instances.

In estimating future needs and placing orders for accounting forms or other material that may be affected, REA electric borrowers should limit quantities to anticipated requirements through the calendar year 1960.

BOUNDARY GUIDES FOR BASE RATE AREA



Effective application of a telephone tariff rests in large measure on the determination of the base rate area boundary. This is particularly true for REA borrowers, serving dozens and hundreds of new subscribers in scattered towns and large rural territories. The boundary between the base rate area in which graded service (1, 2, and 4-party) is normally provided and the rural area in which multi-party service is generally offered must be fixed with care.

Why is it so important? If it is incorrectly established, the application of the tariff will either stir up subscriber complaints and loss of valuable subscriber goodwill or result in loss of necessary revenues.

Certain basic considerations can simplify the task of establishing or realigning boundaries of base rate areas. These guidelines are easily adapted to local conditions.

First of all, the base rate area should be defined to embrace only the compactly and contiguously built-up area of the exchange.

The city limits or other governmental boundaries generally will not provide a proper location of the base rate area boundary. The base rate area, if properly defined, may exclude portions of the town's corporate area and may include some areas outside the corporate limits. (See Figure I.)

It is equally undesirable to define

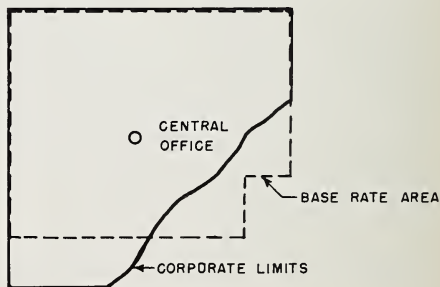


FIGURE I

the base rate area as a circle with radius of certain length around a central office. (See Figure II.) This method usually bears no relationship to the compactly built-up area nor to the requirements of plant construction. Locating new subscribers along the perimeter of a circular base rate area is difficult. This approach, then, hardly appears suitable for equitable rate-making purposes.

The boundary lines of the base rate area should be located so as to avoid different rate treatment of adjacent subscribers, for instance those on opposite sides of the street. This means that a line following down a street, road, or alley should be avoided. It is best to locate the boundary markers a short distance from such known points, and to specify the exact number of feet the boundary is from the known points. These exact measurements will help in the application of mileage charges.

The base rate area boundary should be defined accurately on a map of the exchange area and should be so marked that it will be possible to administer the boundary easily in locating new subscribers.

Like exchange area limits, base rate area boundaries should be reviewed from time to time and altered

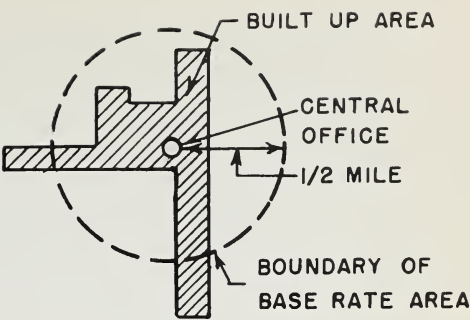
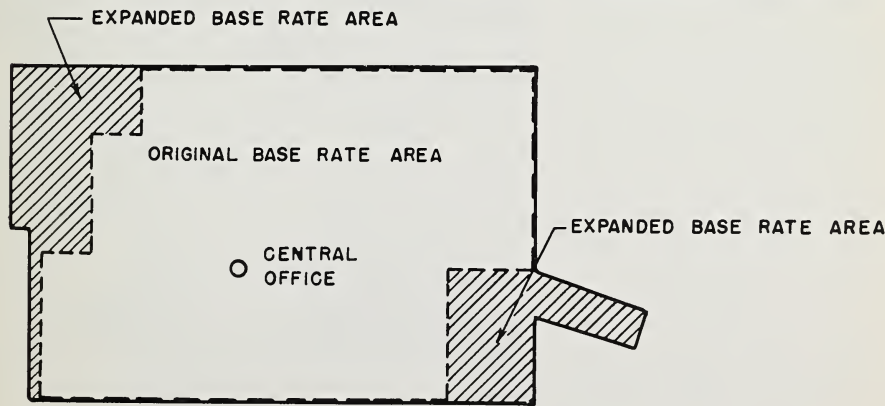


FIGURE II

if necessary to correct “problem spots” and to take into account the extension of the compactly built-up area brought about by building development. (See Figure III.)

Special situations will often arise that require individual treatment. Here are a couple of cases that have already been observed.

(1) A small town or village, with a concentrated group of establishments and residences, may be located outside the base rate area. In such situations the day-to-day interests of these rural people are with those in the base rate area. This community of interests is accompanied by a general demand, often quite vocal, for the same type of service. A supplemental arrangement



February 1960 FIGURE III

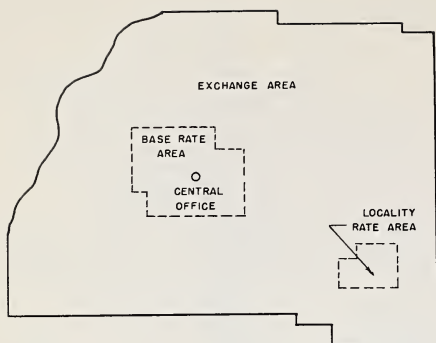


FIGURE IV

may be provided by establishing a so-called locality rate area to take in this town or village. The rates in this area are slightly higher than in the base rate area but less than the basic rates plus mileage charges. (See Figure IV.)

(2) On occasions, particularly when the telephone system serves a sparsely settled area, a central office may be located for economic reasons at a point where no built-up section of business establishments

and residences exists. It may be deemed necessary to include mileage charges along with the regular rates on every subscriber's service. In such cases the base rate area may be established to encompass only the central office building or lot, whichever is more appropriate.

The determining factors in these unusual situations are the same as in the case of establishing or realigning the base rate area in the normal exchange. The treatment accorded the various classes of subscribers should be equitable. Of equal importance, the steps taken should give adequate weight to the revenue requirements of the telephone system. These aspects need to be balanced against each other.

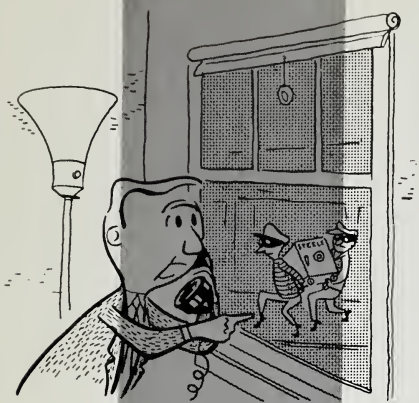
These factors, taken together with the guiding principles as outlined, should go far toward securing the necessary revenues, eliminating or minimizing causes for subscriber complaints, and developing data for regulatory commissions.

Time For A Coffee Break

Manager Milton O. Larson knows where to find employees of the Farmers Mutual Telephone Company, Lynden, Wash., when they are not at their desks. The new headquarters building is equipped with a convenient coffee bar, stools, office-size percolator, and kitchen sink. Employees take turns making coffee each day. In the photograph above are (l. to r.): Office Manager Gertrude Berggraff, Ruby Chestnut, Elsie Brushwood, Melberne Van Huis, and Alta Spedding.

"This coffee bar saves us time," says Manager Larson. "Employees used to have to walk several blocks for refreshments. They like this arrangement and so do I."





CO-OPS and ROBBERS

TOMORROW morning, some unlucky co-op manager may come down to his co-op's headquarters, unlock the front door, and find the office furniture broken, the vault door open, valuable records strewn all over the floor, and hundreds, perhaps thousands of dollars missing.

Several REA borrowers in the Midwest have had this unhappy experience in recent months. Police authorities think that the office robberies are probably part of a pattern, all committed by the same person or persons.

"Managers and board members of REA-financed systems could learn a lesson from these robberies," says a Missouri manager. "That way they could make sure that their buildings will not be next on the list."

Some borrowers have suffered a whole series of break-ins. One such

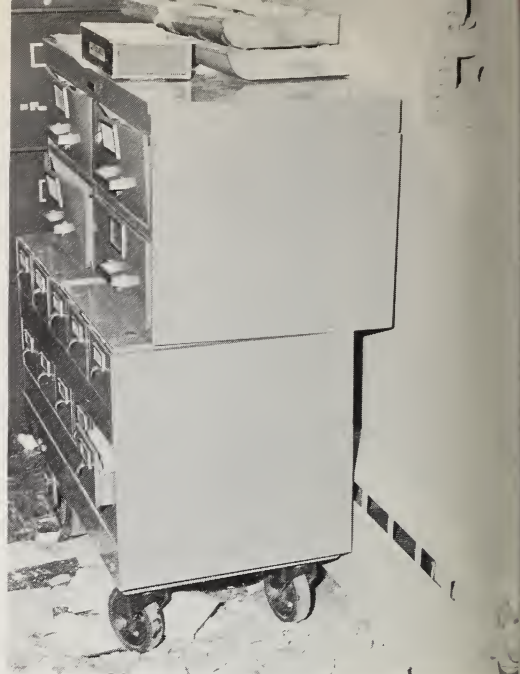
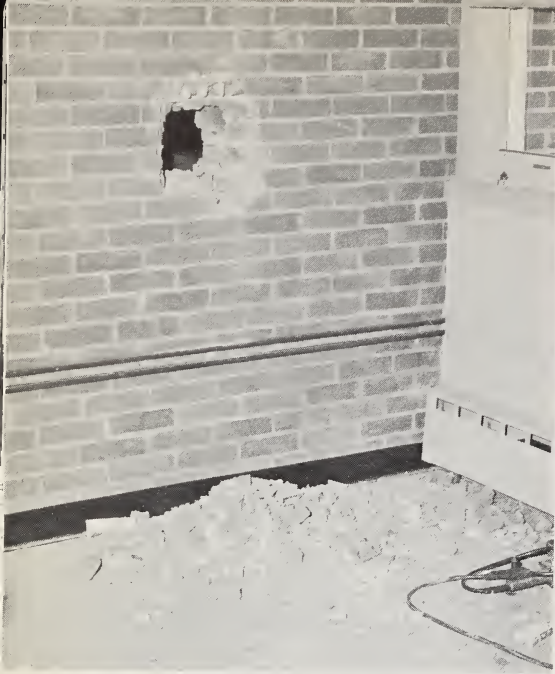
is the New-Mac Electric Cooperative, at Neosho, Mo. In April, 1959, robbers broke into their brand new headquarters building just outside of town. They pounded a hole through a plaster wall to gain access to the vault, and stole nearly \$1,600. One month later, almost to the day, they were back. This time they got away with about \$800 the same way. Two months later, they made a third trip. They stole no money but they damaged the outside gate to the back fence to the tune of \$75 in repairs. All of the losses, of course, were covered by insurance.

Although Manager James F. Lauderback was slightly bewildered by this steady series of thefts, he lost no time in doing something about it.

"After the second break-in," he said, "we decided that the big vault, with the floor-to-ceiling door, offered too much of an invitation to thieves. A vault, any thief knows, is fireproof but not burglar proof. Also, the ease with which they were getting into it prompted us to look around for another place to keep our cash."

Lauderback got the idea for a floor vault from a friend who worked at a nearby supermarket. The market also had been plagued by safecrackers but the break-ins stopped when the floor vault was installed.

The vault that the Neosho co-op put in is a small, unpretentious affair, but practically 100 percent burglar-proof. Set into the floor of the front lobby near the big show-window, it is 15 inches deep, 8 inches square, and is protected by reinforced concrete and a 2-inch thick layer of carbon steel. There is a heavy lid with a combination knob on top, and the whole thing is covered with a thin sheet of circular steel, over which an ordinary ash-tray stands.



This damage was done by thieves who broke into the headquarters of the Freeborn-Mower Cooperative Light and Power Association, Albert Lea, Minnesota, last October. They smashed a window, measured off a spot opposite the vault wall a few feet inside door, and knocked a large hole through brick and tile vault wall (left). Then they used a long crow-bar to reach the handle and open the vault door (right). Loss of currency and damage to property was covered by insurance.

The lid is specially made. A certain chemical has been built into the steel so that, if an acetylene torch is applied to it, the flame will "fizz" back into the thief's face. Vault experts have pronounced this type of vault virtually impossible to crack.

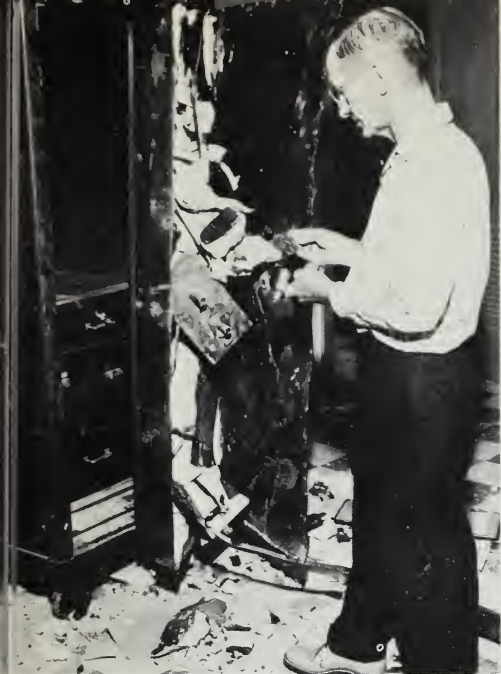
"Another thing that keeps us from getting a return visit," Lauderback comments, "is the position of our new vault. It is smack in front of the picture window that fronts on the main highway, and directly under a glaring spotlight. Anyone working on that vault would be in plain view of everyone through the window, such as the police. The local patrolmen have learned to spot the little flowerpot through the window, as they go by. If it's not there, they investigate."

Last June, after the third break-in, evidence indicated that the thieves un-

covered the floor vault, scratched at it a little, but soon gave it up.

Cost of this floor vault was \$230, including \$50 for installation. However, since it installed the vault, the co-op is entitled to a 20 percent discount on its insurance premium, and that saving alone will pay for the vault in less than 3 years.

The Ozark Electric Cooperative, east of Neosho at Mt. Vernon, Mo., has suffered, too. Last April, thieves broke in, peeled off the entire front of the vault door, punched out the combination, and got away with almost \$700. For a month after the robbery, or until the damage was repaired, Manager S. E. Roberts arranged to have a co-op lineman posted at the building, all night, to serve as watchman. This arrangement was worked out with the insurance company,



Manager James F. Lauderback examines wreckage in office of New-Mac Electric Cooperative, Neosho, Mo., (left) after robbers literally peeled entire door from vault to gain access to cash. Co-op has now installed floor vault and Chloe Breazeale, staff member (right), demonstrates method of depositing valuables. Vault's construction and location make it virtually impossible to crack. Moreover, chemical in steel lid "fizzes" like firecracker when heated.

which paid the lineman's salary plus overtime during that period.

Another direct result of the break-in was the installation, by the local bank, of a night depository. Money doesn't accumulate at the co-op office so quickly; it is deposited in the bank almost as fast as it comes in.

Other REA borrowers in the Midwest have learned about office burglaries the hard way.

Bonding and insurance companies in the area have cooperated tirelessly. They have made prompt restitution for losses the co-ops incur; they have worked with local law enforcement authorities to help track down suspects, and they provide their co-op policy-holders with important suggestions on how to keep the robbers away from their doors.

Briefly, here are the high points of these suggestions:

1. Never keep a large amount of cash in the building. Frequent trips to the bank are worth the time and trouble.

2. Keep the grounds and the exterior of the building well-lit at night.

3. Keep a special spot-light shining on the vault, inside, during the darkness. If possible, relocate the vault, so it is plainly visible through the window.

4. Explore the possibility of tear gas. If installation of a floor vault is not feasible, a small bottle of tear gas can be set to break when an ordinary vault door is opened after hours.

In many small towns, the electric co-op is usually housed in the largest and most imposing building, providing a deadly attraction for professional lawbreakers roaming through rural areas. These alert co-op managers of the Midwest realize this fact.



Mrs. Margaret Stephens, cashier at Co-op's Sedan office, points to all-weather convenience outlet on yard light presented to local church.

A novel "do-it-yourself" project undertaken by the Caney Valley Electric Cooperative Association, at Cedar Vale, Kans., is paying its way many times over in savings and satisfaction to members, in better kwh consumption in off-peak hours, and in priceless public relations.

It all began early in 1959 when a competitive fuel utility started selling yard lights in and around Cedar Vale. Manager Carl Steward and Assistant Manager James Freeman decided, with the board's approval, to do something about it. They shopped around for an electric yard light on the market that the Co-op could offer to its members.

Praise from
the Pulpit . . .

CHURCHES LIKE THEIR YARD LIGHTS

The best one they could find cost \$50 installed and was put together in what seemed to them a rather flimsy fashion. Steward and Freeman were in a quandary. Competitive yard lights were getting a toehold in the Co-op's territory, but the two men hesitated to offer members an electric yard light which they could not conscientiously recommend.

The problem was solved in dramatic fashion. One day Steward and Freeman looked at each other and said, "Why don't we make our own yard lights?"

Freeman sat down at his drawing board and pencilled in some rough sketches. The new yard light was

designed to be simple but substantial, economical but not cheap looking. The nugget of the new idea (which assured success almost from the beginning) was that the Co-op could get most of the parts at little or no expense.

For example, the reflector on top of the light is nothing but a metal disk from an old discarded disk harrow. Each disk cost the Co-op about 15 cents. The glass shade is an old pickle jar, sand-blasted and inverted, at a cost of about 10 cents. The standard is boiler flue pipe, which the Co-op buys new in long, economical lengths and saws down to size. Then, to complete the kit, there is a small photo-electric cell unit that turns the light on and off automatically at sunset and sunrise, some wire and brass tubing, a few nuts and bolts, and black paint. The only tools needed are a hacksaw, welder, and screwdriver.

The Co-op staff at the generating plant in nearby Sedan, Kans., assembles the lights in a back room, during inclement weather and in other spare-time moments. The material cost per light is about \$13 altogether.

The Caney Valley Co-op offers the lights to its members through local dealers at \$17 per light. The dealer gets his profit as a \$2 down payment, and then \$1.25 per month is added to the member's electric bill for 12 months, to account for the remaining \$15. For a total of about \$30, a Co-op member gets a strong, handsome, practical yard light, at a considerable saving over the cost of a less satisfactory product which had been considered earlier.

The electric yard-light idea caught on rapidly from the very beginning. The "do-it-yourself" yard lights began to light up the rural roads and



Fitting the shade onto brass tubing over the renovated pickle jar is Assistant Manager Jim Freeman, who designed the yard light.

the 6 small towns the Co-op serves. Then one day, Steward opened a letter, in his incoming mail, from the pastor of a local church.

"We have heard about your new yard light," the minister wrote, "and we have seen them around town. Our church is interested in getting one, too. Please tell us what we have to do to have one installed near our front door."

This one letter gave Steward and Freeman another idea, and they lost no time in presenting it to the board. "Why not," they suggested, "offer a yard light free to any church served



Leo Keck, used car dealer in Sedan, praises new yard light: "It dresses up the place and cuts down on gasoline filching during the night."

by the cooperative? It would be good public service."

The response was overwhelming. Letters came back from every single house of worship. "Yes," they chorused, "we want a light, and thank you very much."

"We thought the offer would be appreciated and would help the community," Steward recalls, "but we were hardly prepared for the enthusiasm it created." By November, more than half the churches had their yard lights installed, and the rest were going up as fast as possible.

For its initiative and generosity, the Co-op is receiving publicity that cannot be purchased anywhere at any price. More than 5,000 families in the Cedar Vale and Sedan areas have sat in churches on a Sunday morning listening to the ministers praising their electric cooperative from the pulpit.

Church leaders have written letters of appreciation, and so have officers of religious groups that hold meetings on church property.

Rev. Doyle Evans, minister of the Cedar Vale Church of Christ, wrote:

"On behalf of our Church, I wish to extend our deepest gratitude and thanks for the donation of the yard light. It is certainly a noble gesture on the part of your cooperative. The light will be put to great use and will not only enhance the beauty of our grounds but will also be a great safety feature for elderly people each evening following our services."

Heretofore, some churches had an exterior lighting problem. After service, people would stop to chat with friends, on the steps of the church and on the front lawn. When the sexton finally had to go inside and put the church lights out, the people had to go home. Now, they can stay as

long as they want. The light goes on automatically at sundown and stays on till sunup.

One minister told Steward, "When I get here early in the morning before daybreak to start the furnace, that light is still shining. It makes me feel really welcome."

One feature that goes with the light, appreciated by both church and households, is the weatherproof convenience outlet built into the yard-light standard. It is handy for plugging in electric lawn-mowers, radios, and lights for emergencies or parties.

Aftermath of the Co-op's venture into yard light production has been interesting. The Cedar Vale Chamber of Commerce passed a resolution praising the Co-op "for contributing toward the safety of residents and for beautifying the town" . . . More than 100 lights have been installed by Co-op members, not counting the churches . . . Any staff member who "sells" 10 lights gets 1 free for his own use.

Caney Valley Co-op has made special efforts to sell the lights to "idle services." It advances the idea that the member who keeps grain and machinery stored there can protect his property from thieves by installing a dusk-to-dawn light. At the same time, the Co-op gets its monthly minimum bill in revenue. Many fraternal lodges in the area have asked for the lights, but have had to be turned down. The Co-op is filling orders in this priority: residences, churches, idle services. Free light bulbs are furnished to all yard light purchasers, and are replaced free by the Co-op as needed.

Each church installation adds about 50 to 60 cents per month to the bill, thus amortizing the cost of the light in less than 30 months.

POWER

use exchange



POSTER CONTEST—Nearly 350 sixth graders in 6 schools made posters that helped to get out a crowd of more than 800 people to the 1959 annual meeting of Chugach Electric Association, Anchorage, Alaska. Marian I. Hicks, the Co-op's home economist, served as poster contest coordinator and awarded the 12 prizes offered by the Co-op. Another recent youth activity, reported by *Chugach Current*, was a tour of Knik Arm Steam Plant by Boy Scouts working to earn the electricity merit badge.

DRYER AWARD—Tying together 2 spring promotions last year, Cotton Electric Cooperative, Walters, Okla., offered an automatic electric clothes dryer as an award in a contest on the value of running water. Co-op members or their families were encouraged in newsletter publicity to "simply complete this statement in 50 words or less: "My family needs plenty of clean, running water because . . ." Entrants were asked to deposit their coupon entry with a dealer.

"1,200 CLUB—The "elite" in rural areas are found listed in "The Twelve-Hundred Club," a new and exclusive listing featured in *Nebraska Electric News* (Northeast Nebraska Rural Public Power District edition). The list contains nearly 70 names, more than 50 of which are farmers, all using more than 1,200 kwh per month.

GIFT FOR MOTHER—Mother's Day contest announcements were the main theme of March and April issues of several state papers and local newsletters in 1959. Statewide contests took place in such widely scattered states as Alabama, Georgia, and North Carolina; and Iowa, Missouri, and Nebraska. Most Mother's Day contests ended April 30, and follow-up publicity on prize-winning letters and mothers' reactions appeared in May and June issues of monthly papers to members. Contests were open to boys and girls living on lines of REA borrowers, and the topic was "What portable appliance would you like to give your mother for Mother's Day—and Why." Letters of "100 words or less" became the property of local electric co-ops. Timing of the contest was arranged to make it possible to deliver the gifts to award winners' mothers in time for Mother's Day.

DRYERS GALORE—Fall promotions of electric dryers sold 200 dryers among 6,475 residential members of Sioux Valley Empire Electric Association, Colman, S. Dak., bringing saturation of this appliance to more than one-third of the membership: similar results are reported in other areas; 103 dryers among 2,633 members of Buchanan County Rural Cooperative, Independence, Iowa; 60 dryers among 2,137 members of Lincoln-Union offered a small appliance bonus.

Kitchen Parties Sell Appliances in Colorado

"If consumers can't come to the co-op, take the co-op to the consumers," is the power use motto of the Yampa Valley Electric Ass'n.

In years past, Yampa Valley had held several appliance demonstrations at its headquarters in Steamboat Springs, Colo., but few members turned out for them. Ranchers and their wives living many miles away and loaded with all the ranch work they could handle just couldn't spare the time for the long drive.

Power Use Adviser Ev Chesney decided to take his small appliance demonstrations right into the kitchens of the members. He arranged with 6 ranchers in 6 sectors of the mountainous service area to use their kitchens for the promotion. Mrs. Rancher invited her neighbors to attend, and the Co-op furnished all food and equipment for the cooking demonstration, given with the help of a home economist.

A local businessman—a combina-

tion grocer-appliance-electrician—attended each session to discuss major appliances and their service with guests.

At a typical luncheon served at one of the meetings, an electric rotisserie was used to roast a 16-pound turkey; electric saucepans were used for vegetables; cakes were baked in electric frypans; and enough coffee was made in electric percolators to serve the 35 people attending.

Range cable was used to bring power from outside lines into inadequately wired kitchens, and a new modern breaker panel with 8 outlets and individual breakers was used to operate several small appliances at one time. This arrangement was used to point out the need for better wiring.

Some 50 appliances were sold during 1 week of small appliance demonstrations to those who attended the meetings. A total of 200 small appliances were sold as a direct result of this activity, which was primarily an effort to reach minimum bill users.

Manager Glenn Stuke, also president of the Colorado Farm Power Council, summarized the series by commenting, "We are building load among minimum users by meeting the consumers in their own kitchens."

Power Use Adviser Ev Chesney selects small appliances for demonstrations.



The Co-op comes to the kitchen to meet present and future homemakers.



Indiana Co-op Holds 35 Electrical House Parties

During the past year, hundreds of homemakers in the 6-county area served by Morgan County REMC at Martinsville, Ind., have learned a lot about how portable appliances can make homemaking easy, safe, and enjoyable. And learning was fun, for it has been taking place at electrical house parties in various neighbors' homes where 18 to 30 women gathered each time.

At these parties, homemakers learned how to use and care for the appliances they already had, or intended to purchase later. Miss Nellie Grounds of the Morgan County REMC sales department conducted the demonstrations, but no appliances were sold at the house parties.

Homemakers were invited to bring questions on portable appliances, and these were discussed in a question and answer period after the demonstration. Before leaving, homemakers attending the party took the quiz shown on this page. The winner received an electrical appliance.

Complete coverage of the Co-op area with electrical house parties was arranged by having at least 1 party in each of the 35 townships served by Morgan County REMC lines. The hostess chosen for each party was a member of the Co-op.

For having the party, the hostess



received a small appliance of her choice as a gift from the Co-op. Members took home information on portable appliances which in turn led to buying action. They also learned facts about their Co-op during the meeting.

How Many of These Questions Can You Answer?

1. An electric skillet may be used only for frying foods. True False
2. An electric skillet or saucepan is very economical to operate. Using it an average of 30 hours a month, the kilowatt-hour consumption will be: a. 15 kwh b. 30 kwh c. 60 kwh
3. It is safe to completely submerge any of the new electric appliances. True False
4. An electric pressure cooker is dangerous to operate, therefore very few women have them. True False
5. When buying an electric appliance, the price should be the most important factor. True False
6. When using appliances, always disconnect from the appliance first. True False
7. Thermostatic controls protect some new appliances from overheating. True False
8. Most of the portable appliances are operated on wall outlets of 220 volts. True False
9. If your clock, light, and convenience outlet do not operate, you may be able to repair them yourself by simply replacing a fuse. True False

(The answers, as every expert homemaker knows, are: 1—False, 2—15 kwh, 3—False, 4—False, 5—False, 6—False, 7—True, 8—False, 9—True.)

EASTERN NEBRASKA

LOOKS AT ITS FARM MARKET

Faced with more and more idle services, the Eastern Nebraska Public Power District, at Syracuse, Nebr., launched a farm market analysis to determine power use potential. Tabulation of returns from survey cards has just been completed, and General Manager Irvin H. Smith expects to put the data to work in helping consumers use more electric power advantageously.

The power district serves more than 8,000 rural consumers in 7 counties of southeastern Nebraska where farmers raise corn, sorghum, and small grains, and specialize in cattle, hogs, and poultry.

In the 1959 consumer load survey, cards went out to 6,724 farms. The return was high, with 4,600 replies or better than 68% furnishing a solid base for the analysis of farm load saturation. The successful level of returns may have been due in part to the simplicity of the survey form used.

All the questions were put on one side of a 7 by 10 inch card. Only check marks were needed to get most of the information. This simplified the tabulation of the returns and permitted better standardization of the data for analysis. The questionnaire was one half of the oversized return-mail card. The other half bore the notice, "IMPORTANT! Electric Survey," on the address side. The message signed by Manager Smith said in part:

"In order to continue to improve our service, it is necessary to

know the different types and numbers of electric appliances and equipment the District must serve. Continued low rates depend upon the full utilization of the District's system by its consumers.

"To help us with this work of planning for adequate service, both now and in the future, we are asking you to complete the attached electric load survey. Some of the questions may not relate directly to the use of electricity, but we can assure you that they are vital to the operation of the District."

The brief message pointed out that the survey card was already addressed and stamped, ready for mailing as soon as the questions were checked off. Consumers were assured that the individual returns would be held in strict confidence.

For most appliances and equipment, tabulations showed by substation areas: (1) the actual count and percentage of saturation; (2) the projected number, if there had been 100% returns instead of 68% returns; (3) the potential number and the potential annual kwh if there were 100% saturation.

The questions on what appliances and equipment consumers would like to own gave some clues in determining in which substation areas immediate future load could be built, and the amount and distribution of load that would have to be planned for.

Tabulated returns showed home freezers and electric clothes driers at the top of the list of household appliances "most wanted." The distribution by substation areas for the 639 who checked freezers ranged from 22 to as high as 104. The clothes drier potential totalled 634 but the distribution showed a different pattern which piled up potential kwh demand at another substation. Electric washers, air conditioners, water heaters, water systems, and kitchen ranges all were top choices for more than 100 consumers each. When all check marks for 42 different appliances were analyzed, it was apparent that 4 substations areas should be prepared to carry most of this load potential. In a summary of 32 items of electric farm equipment "most wanted," welders led with 513 reports; 121 indicated crop driers.

Current saturation percentages for major appliances showed up as follows for the area served by Eastern Nebraska:

| | |
|------------------|-------|
| Refrigerators | 89.2% |
| Television | 81.6% |
| Freezers | 55.5% |
| Ranges | 52.2% |
| Water heaters | 50.6% |
| Clothes driers | 14.8% |
| Air conditioners | 7.1% |

The completed study included load graphs by months, to show the February peaks and the increasing use of power from year to year. Another graph showed the increase in idle services, which stood at 13.4 percent of all services installed, as of September 1959.

One question on the survey card brought answers which pointed out a serious problem in promoting the effective use of electric power in rural areas. Of 1,474 consumers who answered the question, "Do you find it difficult to locate an electrician to make repairs and do wiring?" 1,301 (more than 88 percent) answered "yes."

Power District President E. L. Hahn thinks the survey and analysis will be the basis for some changes in planning and for more efficient rural electric service in the area.

| | | |
|----------------------------|--|--|
| Circuit ID _____ | Number Of People Living Here? _____ | Would You Be Interested In Electric Heating For: _____ |
| | Do You Plan To Move Soon? _____ | Part Of Your Home? _____ |
| | Where To? _____ | All Of Your Home? _____ |
| Comment _____ | What Other Fuels Do You Use Besides Electricity? _____ | Do You Have A Crop Drier? _____ |
| Tabulation _____ | Electricity? _____ Natural Gas _____ | Is The Fan Electric Powered? _____ |
| (Do Not Write In This Box) | L/P Gas _____ Fuel Oil _____ Coal/Wood _____ | |

CHECK THE FOLLOWING ELECTRIC APPLIANCES WHICH YOU ARE NOW USING

| | | | |
|----------------------|----------------------|-------------------------|--|
| Range _____ | Home Freezer _____ | Bunk Feeder _____ | Room Air Conditioner, Size _____ |
| Clothes Drier _____ | Television _____ | Stock Waterer _____ | Heat Lamps, Number Used _____ |
| Water Heater: _____ | Welder _____ | Poultry Brooder _____ | Portable Elec. Heater, Number _____ |
| Standard Type _____ | Silo Unloader _____ | Stock Tank Heater _____ | Do You Have A Pressure Water System? _____ |
| Quick Recovery _____ | Silage Chipper _____ | Can Milk Cooler _____ | Water Under Pressure In: _____ Home _____ Barn _____ |
| Refrigerator _____ | Barn Cleaner _____ | Bulk Milk Cooler _____ | Poultry House _____ Hog House _____ Other _____ |

Other Appliances: _____

Do You Specialize In? _____ Grade "A" Milk. _____ Egg Or Poultry Production. _____ Hog Production. _____ Beef Production.

INDICATE THE NUMBER OF ELECTRIC MOTORS YOU ARE USING

____ 1/4 H. P. ____ 1/2 H. P. ____ 3/4 H. P. ____ 1 H. P. ____ 1 1/2 H. P. ____ 2 H. P. ____ 3 H. P. ____ 5 H. P. ____ 7 1/2 H. P. ____ 10 H. P.

What Is The Next Electric Household Appliance You Would Like To Own? _____

What Is The Next Piece Of Electric Farm Equipment You Would Like To Own? _____

Do You Find It Difficult To Locate An Electrician To Make Repairs And Do Wiring? _____

Which Appliance Dealer Do You Usually Trade With? _____ Electrician? _____

What Daily Newspaper Do You Usually Read? _____ Weekly Paper? _____

What TV Station Do You Listen To Most? _____ Radio Station? _____

Your Comments Or Suggestions: _____



Little Co-op at **LITTLEFIELD**

An oasis in the desert greets the traveler along U.S. Route 91 when crossing the northwest corner of the state of Arizona. This fresh, green spot is a welcome sight as one looks down from a high ridge upon the small community of Littlefield, location of REA's smallest borrower.

A short stretch of the Virgin River Valley has been changed from an arid land, with a sparse scattering of

This is Littlefield's main thoroughfare, with Co-op pole and transformer marking the intersection.

brush, to fertile fields by irrigation. Back in 1944, an REA loan for \$20,000 provided electricity to carry on the start that had been made at irrigating some of the land. Since war-time controls were in effect, this need for irrigation was the basis on which the loan could be made.

The arid land with its rich soil and the warm sun shining on it needed only water to make it produce. The river, fed by springs, is diverted to irrigate some fields. Shallow wells provide much of the water required for irrigation. At present 6 pump installations are used to irrigate the fields extending alongside the cluster of buildings which is Littlefield.

The 24 members of Littlefield Electric Cooperative are mostly truck farmers, hitting the fresh vegetable market between California and the northern areas. Flowers give them another specialty crop. Alfalfa is also irrigated to support small livestock and dairy herds. At times, this may be supplemented by grazing.

Through wheeling arrangements, the little Co-op receives its power from Boulder Dam. It was granted an allocation by the Arizona Power Authority. The last step in bringing power to the Co-op is handled by Overton Power District No. 5 of Overton, Nevada. The power district also does the line and maintenance work for this little system.

The Co-op, being so small, has no paid employees. Afton Reber, its president, serves also as manager. Sometimes his truck farming keeps him pretty busy. If a visitor wants to talk to him, he may have to catch Reber in the middle of a vegetable



You are looking at practically the whole town of Littlefield, Ariz., with the majestic Virgin Mountains in the background.

field. For instance, when a sudden order comes in from Salt Lake City for a carload of onions and radishes, everything else gets pushed aside. Then he can be found with about 30 Indians working in the field. His wife is right there with him checking and pushing the work right along.

Littlefield is a close-knit community, completely surrounded by desert land. The residents are proud of their green fields and fine crops, and pleased as punch with the benefits electricity has brought them. They appreciate the comforts it has brought to their homes. Mrs. Reber has this to say:

"My new electric appliances sure make housekeeping a pleasure. Now that we have them, I wouldn't trade life in this peaceful little valley for any other place in the world."

Reber points with pride to the vegetable crops, the cultivated fields, and the well-kept livestock. He sums up the feeling of all the Littlefield residents in these words: "Electricity helped us bring about this miracle in the midst of a desert."



It's cooky-and-milk time for the small fry. Mrs. Afton Reber (left) presides in her all-electric kitchen, with daughter Ruth and 2 grand-daughters.

Rumell Reber takes his 2 sons Kelley and Keith for a horseback ride along the Co-op's lines.



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ONE MILLION
MAN HOURS
OF SAFETY



Employees of the Maquoketa Valley Rural Electric Cooperative, at Anamosa, Iowa, have completed a million hours of work without a single lost-time accident. This is matched by only one other REA borrower, the Blue Ridge Electric Membership Corporation, Lenoir, N. C. In the picture above, G. J. Armstrong, president of Maquoketa Valley, congratulates Maintenance Superintendent Harold Wolmutter on the safety record.

The Maquoketa Valley achievement is no happenstance. Back in 1939, this cooperative held the first sessions of the safety educational and demonstration program established by REA following a rash of accidents in early line construction. Edgar D. Beach was manager of Maquoketa Valley then. In receiving a plaque awarded by the insurance company, Beach pointed out the long tenure of the Co-op's employees.

Beach himself has been with the rural electric enterprise since its preliminary organization in April 1936. Superintendent Wolmutter, now in his 20th year, is the second oldest employee. Twenty of the Co-op's 49 employees have served for more than 10 years. Manager Beach believes this may have something to do with the outstanding safety performance. "These men have learned to work with each other and to use safety practices as a team," he points out.

Teamwork is one of the points illustrated in a new 12-page brochure of safety aids which REA is mailing to borrowers. Every director and every manager is urged to read "A Safety Program That Works."